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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No.	P-2914-US
First Inventor or Application Identifier	ELIOR, Ariel
Title	A METHOD FOR HOMOGENIZING THE EXPOSURE OF THE DIFFERENT BEAMS IN A MULTI BEAM PLOTTER
Express Mail Label No.	

JC813 U.S. PTO 09/717290 11/22/00

APPLICATION ELEMENTS
See MPEP chapter 600 concerning patent application contents

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. [X] * Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. [ ] Applicant claims small entity status.
See 37 CFR 1.27.
3. [X] Specification [Total Pages 10]
(preferred arrangement set forth below)
- Descriptive title of the Invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to sequence listing, a table, or a computer program listing appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings (if filed)
- Detailed Description
- Claim(s)
- Abstract of the Disclosure
4. [X] Drawing(s) (35 U.S.C. 113) [Total Sheets 2]
5. Oath or Declaration [Total Pages 9]
a. [X] Newly executed (original or copy)
b. [ ] Copy from a prior application (37 C.F.R. § 1.63(d)) (for continuation/divisional with Box 16 completed)
i. [ ] DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. [ ] Application Data Sheet. See 37 CFR 1.76
7. [ ] CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
a. [ ] Computer Readable Form (CRF)
b. [ ] Specification Sequence Listing on:
i. [ ] CD-ROM or CD-R (2 copies); or
ii. [ ] paper
c. [ ] Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. [X] Assignment Papers (cover sheet & document(s))
10. [ ] 37 C.F.R. §3.73(b) Statement (when there is an assignee) [ ] Power of Attorney
11. [ ] English Translation Document (if applicable)
12. [ ] Information Disclosure Statement(IDS)/PTO-1449 [ ] Copies of IDS Citations
13. [ ] Preliminary Amendment
14. [ ] Return Receipt Postcard (MPEP 5303)
(Should be specifically itemized)
15. [ ] Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. [X] Other: Postcard

17. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No.: ____/____

Prior application information: Examiner Group/Art Unit:

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

18. CORRESPONDENCE ADDRESS

[ ] Customer Number or Bar Code (Insert Customer No. or Attach bar code label here) or [X] Correspondence address below

Name	Eitan, Pearl, Latzer & Cohen-Zedek				
Address	One Crystal Park, Suite 210, 2011 Crystal Drive				
City	Arlington	State	VA	Zip Code	22202-3709
Country	USA	Telephone	(703) 486-0600	Fax	(703) 486-0800

Name (Print/Type)	Mark S. Cohen	Registration No. (Attorney/Agent)	42,425
Signature		Date	22 November 2000

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Box Patent Application, Washington, DC 20231.

PTO/SB/17 (09-00)
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Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2001

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT ($)710.00

Complete If Known	
Application Number	
Filing Date	
First Named Inventor	ELIOR, Ariel
Examiner Name	Not yet assigned
Group / Art Unit	Not yet assigned
Attorney Docket No.	P-2914-US

METHOD OF PAYMENT (check one)

1. ☒ The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit Account Number: 05-0649

Deposit Account Name: Eitan, Pearl, Latzer & Cohen-Zedek

☒ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

☐ Applicant claims small entity status. See 37 CFR 1.27

2. ☐ Payment Enclosed:

☐ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	710.00
106	320	206	160	Design filing fee	
107	490	207	245	Plant filing fee	
108	710	208	355	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($)710.00

2. EXTRA CLAIM FEES

			Extra Claims		Fee from Below		Fee Paid
Total Claims	7	-20** =	0	X		=	
Independent Claims	1	-3** =		X		=	
Multiple Dependent				X		=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	80	209	40	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for *ex parte* reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	390	216	195	Extension for reply within second month	
117	890	217	445	Extension for reply within third month	
118	1,390	218	695	Extension for reply within fourth month	
128	1,890	228	945	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,240	241	620	Petition to revive - unintentional	
142	1,240	242	620	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	600	244	300	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	710	246	355	Filing a submission after final rejection (37 CFR 1.129(a))	
149	710	249	355	For each additional invention to be examined (37 CFR 1.129(b))	
179	710	279	355	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

- Reduced by Basic Filing Fee Paid SUBTOTAL (3) ($)

SUBMITTED BY				Complete (if applicable)	
Name (Print/Type)	Mark S. Cohen	Registration No. (Attorney/Agent)	42,425	Telephone	(703) 486-0600
Signature				Date	November 22, 2000

A METHOD FOR HOMOGENIZING THE EXPOSURE OF THE DIFFERENT BEAMS IN A MULTI BEAM PLOTTER

FIELD OF THE INVENTION

The present invention relates to the field of plotting on film or plate and more specifically to plotting by a multi-beam laser array.

BACKGROUND OF THE INVENTION

A multi-beam plotter is a device that uses an array of laser beams to produce an image on a light sensitive media like film or offset plate. In most such machines, the beams in the array are adjacent to one another. In order to receive a good image without artifacts, the intensity of the different laser beams on the exposed media should have a very similar value. Plotters usually have a light calibration system that uses a light detector to calibrate all the laser beams to work at the same intensity. In spite of the light calibration system, the exposed image looks, sometimes, not quite homogeneous. This non-homogeneous exposure can be caused, for example, by a slight difference in the wavelength of the different beams and a non-flat response of the media to the different wavelengths.

In order to solve the non-homogeneity problem, each beam has to be operated separately, its exposure result investigated and the intensity of each diode corrected accordingly. In a multi-beam plotter, exposing with a single

beam takes, relatively, a very long time. Hence, This calibration procedure is very tedious and cumbersome.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a method for homogenizing the exposure of different beams in a multi-beam plotter, comprising the steps of:

creating digital data, wherein each row comprises data to be exposed by one of said beams; and

using said plotter to expose said digital data on a substrate,

wherein, following each exposure cycle by all of said beams moving in a first direction relative to said substrate, said beams move in a second direction, generally perpendicular to said first direction, relative to said substrate,

and wherein the distance traversed by said beams in said second direction is smaller than the sum of widths covered by all of said beams.

It is a further object of the present invention to provide a method for homogenizing the exposure of different beams in a multi-beam plotter, comprising the steps of:

creating digital data, wherein each row comprises data to be exposed by one of said beams and wherein each column comprises a number of consecutive data elements, said number being equal to the number of said beams.

using said plotter to expose said digital data on a substrate,

wherein, following each exposure cycle by all of said beams moving in a first direction relative to said substrate, said beams move in a second direction, generally perpendicular to said first direction, relative to said substrate,

and wherein the distance traversed by said beams in said second direction is smaller than the sum of widths covered by all of said beams.

It is yet another object of the present invention to provide a method for homogenizing the exposure of different beams in a multi-beam plotter, comprising the steps of:

creating digital data, wherein each row comprises data to be exposed by one of said beams; and

using said plotter to expose said digital data on a substrate,

wherein, following each exposure cycle by all of said beams moving in a first direction relative to said substrate, said beams move in a second direction, generally perpendicular to said first direction, relative to said substrate,

and wherein the distance traversed by said beams in said second direction is equal to the width of one column covered by each one of said beams.

DETAILED DESCRIPTION OF THE INVENTION

The present invention provides a method to expose, in one pass of the machine, an image that is composed of a series of calibration patches, each one exposed by a different beam. The method combines exposing an especially designed file and a special mode of the carriage motion, carrying the exposure head.

It is an aim of the present invention to provide an exposed pattern that will facilitate the separate investigation of the light intensity of each laser beam, by exposing solid blocks, each exposed by one predetermined beam.

The digital file built for this purpose comprises, in each row, data to be exposed by a single beam. Each row is constructed of one-pixel width columns, comprising data-columns (ON) and non-data-columns (OFF). The distance between two adjacent data-columns in each row equals the number of working beams. The rows are similar to each other, but with a data-column shift of one pixel (in the direction of the carriage movement) between rows assigned to adjacent beams.

Normally, when exposing a pattern using a multi-beam array of N beams, N adjacent columns will be exposed on each revolution of the drum, followed by a carriage movement in the carriage movement direction, perpendicular to the exposure direction. The distance of the carriage movement equals the width of the array, resulting in a gap of the same width between consecutive columns exposed by each beam.

According to the present invention, while exposing the special file the carriage moves, after each revolution of the drum, a distance that is equal to the

distance it would cover if the exposure had been done with less than the total number of beams, while the data distribution between the different beams does not change. In the extreme case, the carriage covers a distance corresponding to only one working beam. This reduced motion distance results in the shrinking of the exposed data in the direction of the carriage movement during exposure; i.e. the columns appear on the media closer than in the original file. If the distance is of one working beam, the columns exposed by each beam appear adjacent to one another, without the gaps that exist in the original file. Because of the one-pixel shifts in the design of the original file, a different beam exposes each row. The final result on the media is a slanted column of patches, each exposed by a different beam. This pattern gives the operator a tool for investigating the interaction between the media and each single beam, and for correcting the beam intensity accordingly.

Compared to the conventional method of exposing, creating these one-beam patches in the method of the present invention reduces the exposure time for creating the N patches by a factor equal to the number of working beams.

Attention is drawn now to Figs 1, showing a first example of a digital pattern to be exposed according to the present invention and to Fig. 2, showing the resulting exposed pattern of patches. In this example, the number of working beams is 4 and the carriage motion distance equals that of a one-beam system.

The digital pattern 20 comprises data patches. During the first revolution of the drum, patch 24 is exposed by beam B1, patch 26 is exposed by beam B2,

patch 28 is exposed by beam B3 and patch 30 is exposed by beam B4. Following this revolution, the carriage moves in the direction indicated by arrow 32, a distance that equals one column width. On the other hand, the data system supplies each laser diode with the same data it would have been supplied in a normal working carriage motion, resulting in patch 34 being exposed by beam B1, etc.

Fig. 2 shows the resulting exposed pattern, where patch 36 was exposed by beam B1, patch 38 was exposed by beam B2, patch 40 was exposed by beam B3 and patch 42 was exposed by beam B4.

Attention is drawn now to Figs 3, showing a second example of a digital pattern to be exposed according to the present invention and to Fig. 4, showing the resulting exposed pattern of patches. Again, the number of working beams is 4 and the carriage motion distance equals that of a one-beam system.

The digital pattern 44 comprises data patches. During the first revolution of the drum, patches 46 and 48 are exposed by beam B1, patches 50 and 52 are exposed by beam B2, patches 54 and 56 are exposed by beam B3 and patches 58 and 60 are exposed by beam B4. Following this revolution, the carriage moves in the direction indicated by arrow 62, a distance that equals one column width. On the other hand, the data system supplies each laser diode with the same data it would have been supplied in a normal working carriage motion, resulting in patches 64 and 66 being exposed by beam B1, etc.

Fig. 4 shows the resulting exposed pattern, where pattern 68 was exposed by beam B1, pattern 70 was exposed by beam B2, pattern 72 was exposed by beam B3 and pattern 74 was exposed by beam B4.

It will be understood by any person skilled in the art, that the present invention, described hereinabove in conjunction with a drum plotter, can also be applied to flat-bed plotters.

It will also be understood that the plotters that may benefit from the present invention may be film plotters (imagesetters) or platesetters, using multi-beam exposure systems.

It will further be understood that the present invention may also be applied to plateless printing systems, wherein the plate imaging is performed on the system.

CLAIMS

1. A method for homogenizing the exposure of different beams in a multi-beam plotter, comprising the steps of:

creating digital data, wherein each row comprises data to be exposed by one of said beams; and

using said plotter to expose said digital data on a substrate,

wherein, following each exposure cycle by all of said beams moving in a first direction relative to said substrate, said beams move in a second direction, generally perpendicular to said first direction, relative to said substrate,

and wherein the distance traversed by said beams in said second direction is smaller than the sum of widths covered by all of said beams.

2. A method according to claim 1, wherein said step of creating comprises creating digital data wherein each column comprises a number of consecutive data elements, said number being equal to the number of said beams.

3. A method according to claim 1, wherein said distance traversed by said beams in said second direction is equal to the width of one column covered by each one of said beams.

4. The method according to claim 1, wherein said plotter is an imagesetter.

5. The method of claim 1, wherein said plotter is a platesetter.

6. The method of claim 1, wherein said plotter is a drum plotter.

7. The method of claim 1, wherein said plotter is a flatbed plotter.

ABSTRACT

Disclosed are methods and apparatus for homogenizing the exposure of different beams in a multi beam-plotter. The plotter typically operates on films or plates.

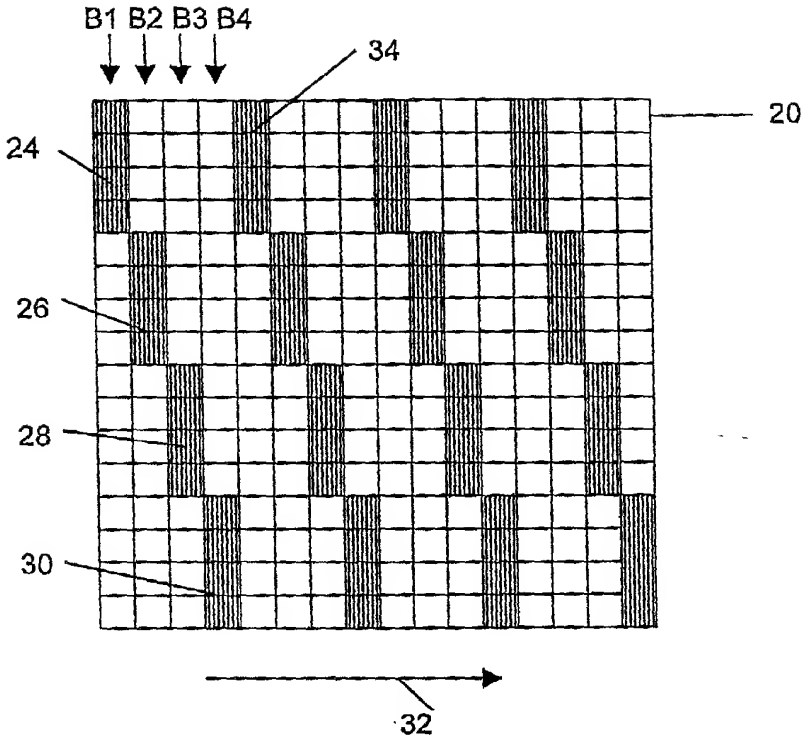

FIG. 1

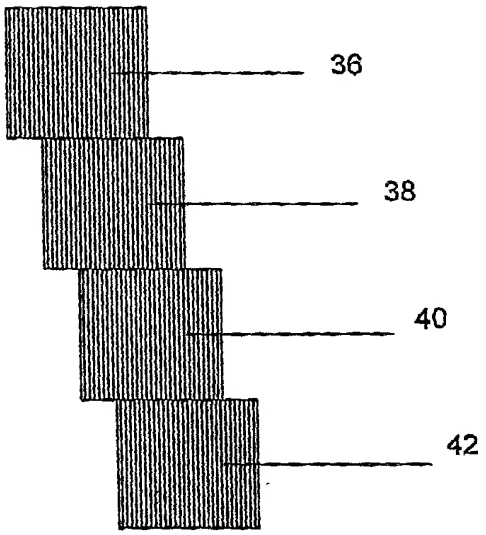

FIG. 2

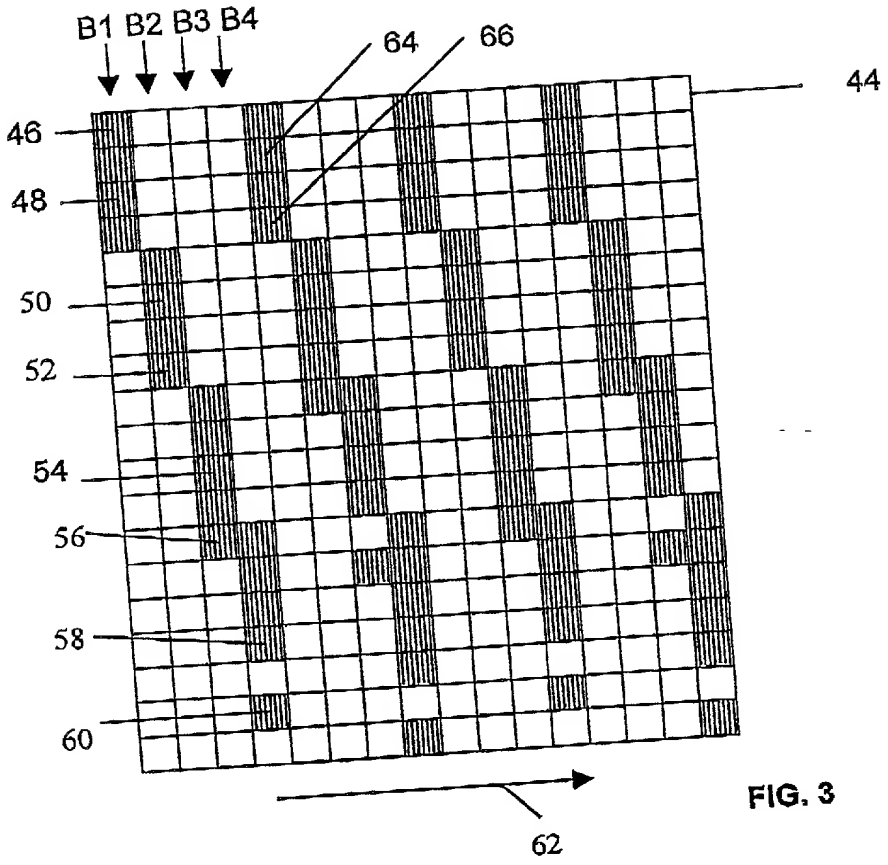

FIG. 3

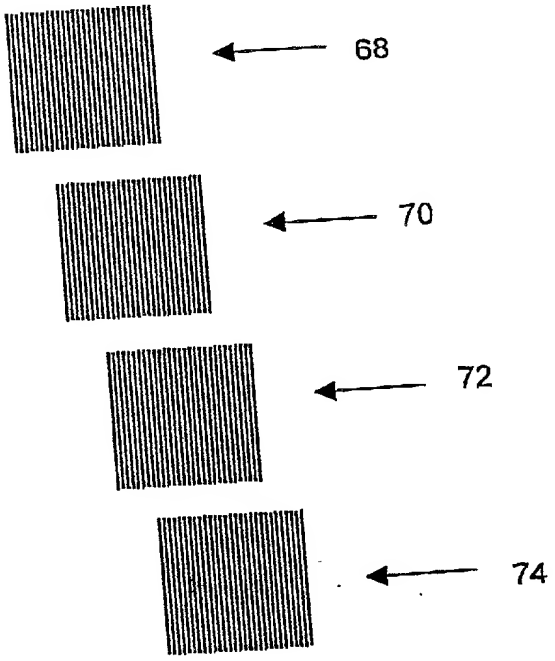

FIG. 4

From the makers of- SNAP®

* non-explosive

RESCUE™

Attorney Docket No.: **P-2914-US**

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below under my name.

I believe that I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled

A METHOD FOR HOMOGENIZING THE EXPOSURE OF THE DIFFERENT BEAMS IN A MULTI BEAM PLOTTER

the Specification of which

☒ is attached hereto
☐ was filed on
as United States Application Number or PCT International Application No.
and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified Specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any provisional application filed in the United States in accordance with 35 U.S.C. §1.119(e), or any application for patent that has been converted to a Provisional Application within one (1) year of its filing date, or any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FILED APPLICATION(S)

APPLICATION NUMBER	COUNTRY	(DAY/MONTH/YEAR FILED)	PRIORITY CLAIMED
60/167,916	**US**	**30-Nov-99**	Yes

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in any prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a), which occurred

between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION NO.	FILING DATE (DAY/MONTH/YEAR)	STATUS - PATENTED, PENDING, ABANDONED
60/167,916	30-Nov-99	

I hereby appoint as my attorney(s) and agent(s) Heidi M. Brun (Agent, Registration No. 35,104), or Jerome R. Smith, Jr. (Attorney, Registration No. 35,684), or Daniel J. Swirsky (Agent, Registration No. 45, 148) or Mark S. Cohen (Attorney, Registration No. 42, 425) or Rochel L. Abboudi (Agent, Registration No. 44,490) or Suzanne Erez (Agent, Registration No. 46,688) said attorney(s) and agent(s) with full power of substitution and revocation to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Please address all correspondence regarding this application to:

Jerome R. Smith, Jr.
EITAN, PEARL, LATZER, & COHEN-ZEDEK
ONE CRYSTAL PARK, SUITE 210
2011 CRYSTAL DRIVE
ARLINGTON, VA 22202-3709

Direct all telephone calls to (703) 486-0600 and all facsimiles at (703) 486-0800.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF INVENTOR: **ELIOR, Ariel**

FULL RESIDENCE ADDRESS: **9 Savyon Street, Modi'in 71700, Israel**

COUNTRY OF CITIZENSHIP: **Israel**

FULL POST OFFICE ADDRESS: **same**

SIGNATURE OF INVENTOR X _____

DATE X _____

FULL NAME OF INVENTOR: **WEISS, Alex**

FULL RESIDENCE ADDRESS: **9/6 Hatavas Street, Kadima 60920, Israel**

COUNTRY OF CITIZENSHIP: **Israel**

FULL POST OFFICE ADDRESS: **same**

SIGNATURE OF INVENTOR X _____

DATE X _____

FULL NAME OF INVENTOR: **VASHDI, Shmuel**

FULL RESIDENCE ADDRESS: **8/3 Barak Street, Kfar-Saba 44536, Israel**

COUNTRY OF CITIZENSHIP: **Israel**

FULL POST OFFICE ADDRESS: **same**

SIGNATURE OF INVENTOR X _____

DATE X _____

Attorney Docket No.: **P-2914-US**

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My residence, post office address and citizenship are as stated below under my name.

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EITAN, PEARL, LATZER, & COHEN-ZEDEK
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FULL NAME OF INVENTOR: **ELIOR, Ariel**

FULL RESIDENCE ADDRESS: **9 Savyon Street, Modi'in 71700, Israel**

COUNTRY OF CITIZENSHIP: **Israel**

FULL POST OFFICE ADDRESS: **same**

SIGNATURE OF INVENTOR X _____

DATE X 13/11/00

FULL NAME OF INVENTOR: **WEISS, Alex**

FULL RESIDENCE ADDRESS: **9/6 Hatavas Street, Kadima 60920, Israel**

COUNTRY OF CITIZENSHIP: **Israel**

FULL POST OFFICE ADDRESS: **same**

SIGNATURE OF INVENTOR X _____

DATE X 13/11/00

FULL NAME OF INVENTOR: **VASHDI, Shmuel**

FULL RESIDENCE ADDRESS: **8/3 Barak Street, Kfar-Saba 44536, Israel**

COUNTRY OF CITIZENSHIP: **Israel**

FULL POST OFFICE ADDRESS: **same**

SIGNATURE OF INVENTOR X _____

DATE X _____

Attorney Docket No.: P-2914-US

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I hereby state that I have reviewed and understand the contents of the above-identified Specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any provisional application filed in the United States in accordance with 35 U.S.C. §1.119(e), or any application for patent that has been converted to a Provisional Application within one (1) year of its filing date, or any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FILED APPLICATION(S)

APPLICATION NUMBER	COUNTRY	(DAY/MONTH/YEAR FILED)	PRIORITY CLAIMED
60/167,916	**US**	**30-Nov-99**	**Yes**

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in any prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a), which occurred

between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION NO.	FILING DATE (DAY/MONTH/YEAR)	STATUS - PATENTED, PENDING, ABANDONED
60/167,916	**30-Nov-99**	

I hereby appoint as my attorney(s) and agent(s) Heidi M. Brun (Agent, Registration No. 35,104), or Jerome R. Smith, Jr. (Attorney, Registration No. 35,684), or Daniel J. Swirsky (Agent, Registration No. 45, 148) or Mark S. Cohen (Attorney, Registration No. 42, 425) or Rochel L. Abboudi (Agent, Registration No. 44,490) or Suzanne Erez (Agent, Registration No. 46,688) said attorney(s) and agent(s) with full power of substitution and revocation to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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